

REMARKS

In the claims

Applicants would like to thank the Examiner for the review of the present application. Claims 1-5, 8, 12-13, 15, 18-20, 24-32, 36, 49, 53 and 93 are currently pending. Claims 1-2, 8, 4-5, 18, 25, and 36 have been amended. As requested by Examiner pursuant to 37 C.F.R. 1.144 and MPEP §821.01, claims 33-34 and 60-81, previously withdrawn from consideration, are canceled as they are non-elected claims. Additionally, claims 6-7, 9-11, 14, 16-17, 21-23, 35, 37-48, 50-52, 54-59 and 82-92 and 94-102 have been canceled. Support for these amendments can be found in the specification. No new matter has been added.

35 U.S.C. § 112 ¶ 2 – Indefiniteness

Claims 1-32, 35-59, and 82-102 are rejected under 35 U.S.C. §112 ¶ 2 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Office action states that “a) the claims are incomplete for omitting essential structural cooperative relationships of elements and omitting essential steps and b) it is unclear what specific elements in a)-e) of claim 1, the fluid levels in the system is being maintained at near constant levels within the context of the claimed invention.” See Office Action dated May 16, 2007 at page 2. Applicants respectfully traverse this rejection.

Although Applicants do not agree with the grounds for rejection, Applicants have amended claim 1 to include additional limitations supported by the specification and to remove the limitation of “a feedback control loop comprising level sensors and variable-flow valves for controlling fluid flow and maintaining fluid levels in the system at near constant levels.” Additionally, claims 25 and 36 has been amended to include additional limitations supported by the specification and remove “controlling fluid flow and maintaining fluid levels in the system at near constant levels using a feedback control loop comprising level sensors and variable-flow valves.” Additionally, Applicants’ cancelled claims 6-7, 9-11, 14, 16-17, 21-23, 35, 37-48, 50-52, 54-59 and 82-92 and 94-102 renders Examiner’s §112 ¶2 rejections regarding these claims moot.

These amendments have rendered the § 112 ¶ 2 grounds for rejection moot and Applicants respectfully request the withdrawal of this rejection.

Non-Statutory Obviousness-Type Double-Patenting

Applicants herein attach a Terminal Disclaimer with respect to U.S. Application Serial No. 10/713,591. As such, Applicants respectfully request the nonstatutory double patenting rejection be withdrawn.

35 U.S.C. § 103(a) – Obviousness

Claims 1-18, 24, 35-40, 52-59 and 82-102 are rejected under 35 U.S.C. § 103(a) as being unpatentable over GB 121 1236 (“GB ‘236”) or Huse (US3,956,072) in view of Stewart (US 1,668,532) and Hobbs (US 4,265,263) and with or without Chou et al (US 6,698,353). Applicants respectfully traverse this rejection.

Regarding the Hobbs (US 4,265,263) and Chou et al (US 6,698,353) rejection, although Applicants do not agree with the grounds for the rejection, Applicants have amended claims 1, 25 and 36 removing the feedback control loop element. These amendments render moot the rejections over Hobbs and Chou.

Regarding the rejection over GB 121 1236 (“GB ‘236”) or Huse (US3,956,072) and Stewart (US 1,668,532), the Office action states “[i]t would have been obvious to one of ordinary skill in the art to modify the apparatus and method of GB ‘236 or Huse such that the vapor pump comprised an internal drive shaft; and an eccentric rotor with a rotatable housing as such is conventionally done in the art as taught by Stewart.” See Office Action dated September 29, 2006, page 6. Applicants respectfully disagree. Although Applicants do not agree with the grounds for the rejection, Applicants have amended claims 1 and 25 to include additional limitations supported by the specification at page 9 lines 19-20, page 22 lines 15-17, Figures 1, 5A-5D, 6A, 8, and 9, and elsewhere in the current application. Thus, with respect to amended claims 1 and 25, GB ‘236, Huse, and Stewart fail to disclose or suggest all the elements of amended claims 1 and 25. Specifically, the references fail to disclose or suggest: an evaporative condenser coupled to the input for transforming the liquid to vapor and for transforming compressed vapor into a distilled liquid product and a vapor pump for compressing the vapor, the vapor pump in communication with the evaporative condenser and comprising: i. a single

continuous internal drive shaft, ii. at least one intake for axial feeding; and iii. an eccentric rotor with a fully rotatable housing, the rotatable housing supported by a rotatable housing shaft.

Firstly, GB '236, Huse, and Stewart all fail to disclose an evaporative condenser. In contrast, GB '236 discloses a separate flash evaporator (36) and a condenser (20) and not an evaporative condenser. At page 2 lines 114-116, GB '236 states that "the vapor flowing through the discharge conduit 26 is condensed in the main heat exchanger 20, to form a distillate flowing along the discharge conduit 26." From this description, the reference discloses a heat exchanging condenser rather than an evaporative condenser. Even more, FIG. 1 of GB '236 illustrates a flash evaporator (36) and a heat exchanger/condenser (20) separated by a differential valve (24) and a recirculating brine pump (42).

Similarly, Huse discloses a separate evaporator (10) or (40) and condenser (20) or (51). At most, Huse discloses a liquid ring compressor (20) where "condensation occurs until liquid-vapor equilibrium is established, and thus the compressor acts as a direct contact condenser." See col. 2 ll. 63-68. Essentially, Huse discloses a compressive condenser rather than an evaporative condenser. Additionally, the figures show separate evaporator and condenser units. FIG. 1 shows an evaporator (10) and a compressive condenser (20) separated by a rotary compressor (15). FIG. 2 shows an evaporator (41) and a condenser (51) separated by a rotary positive displacement compressor (44) and a liquid ring compressor (48).

Stewart discloses only a rotary machine and thus fails to disclose the evaporative condenser of Applicants' apparatus. Neither GB '236 nor Huse nor their combination with Stewart would disclose all the elements of claims 1 and 25.

In addition to failing to disclose an evaporative condenser, GB '236, Huse, and Stewart fail to disclose a vapor pump for compressing the vapor, the vapor pump in communication with the evaporative condenser and comprising: i. an internal drive shaft, ii. at least one intake for axial feeding; and iii. an eccentric rotor with a fully rotatable housing, the rotatable housing supported by a rotatable housing shaft. While the Office action states that a combination of GB '236 or Huse with Stewart would disclose the vapor pump of claims 1 and 25, Applicants respectfully disagree.

A combination of GB '236 and Stewart fail to disclose a vapor pump comprising at least one intake for axial feeding. GB '236 discloses a liquid ring pump comprising radially fed inlets (74) "which direct inlet vapor to the right and left hand port member 76." See pg. 3 lines 91-92.

As seen in FIGS. 2 and 3, the arrows show the direction vapor travels through the ring pump. In these figures, vapor is fed radially into the pumping chambers (65) through the frustoconical inlet passages (74). Combining Stewart with GB '236 also fails to disclose at least one intake for axial feeding. Stewart describes the flow of gas at page 2 lines 62-66: "gas being pumped will then be drawn into the chambers at the left side of said figure [Figure 2] through the inlet opening 8 and the respective passages 16." Essentially, Stewart describes inlet openings (8) for radial feeding, as opposed to axial feeding. Further support is found in FIGS. 2, 5, and 6. There, arrows show the direction in which vapor is fed into the liquid ring pump: vapor first arrives in the liquid ring pump at the inlet opening (6) and is fed radially into the compression chambers (15) through the inlet openings (8). With this combination, GB '236 and Stewart fail to disclose a vapor pump comprising at least one intake for axial feeding.

A combination of Huse and Stewart also fails to disclose the vapor pump described by Applicants. Specifically, Huse fails to disclose a vapor pump comprising a single continuous internal drive shaft. Huse teaches a two stage compressive distillation apparatus utilizing a rotary positive displacement compressor and a liquid ring pump. At col. 6 ll. 46-63, the Huse reference discloses one compressor having "two counter-rotating rotors 75 and 76 matched to rotate together in counter-rotation without metal-to metal contact" and another compressor "having one rotating part, a bladed rotor 85 which rotates freely without metal-to-metal contact around a stationary port cylinder 86. The rotor 85 and port cylinder 86 are concentric by the casing 87 has an eccentric lob 88 formed therein." From FIGS. 1 and 2, these compressors have their own individual motors (45) and (49), respectively, and are not on a single continuous internal drive shaft. Modifying Huse to include a single continuous internal drive shaft would make Huses's invention inoperable. Placing two compressors on a single continuous internal drive shaft requires concentric compressor rotors. As stated in Huse at col. 4 lines 16-20, the two-stage vapor compressors "can be operated by a single motor through coupling, V-belt, gear drive, or a combination thereof." Having couplings, V-belts, gear drives, or combinations thereof would not result in a single continuous internal drive shaft as claimed by Applicants.

Furthermore, combining Stewart with Huse still would not disclose Applicants' apparatus because Huse would still be inoperable on a single continuous internal drive shaft, and as analyzed above, Stewart still would not have at least one intake for axial feeding.

Because GB '236, Huse, and Stewart fail to disclose or suggest an evaporative condenser coupled to the input for transforming the liquid to vapor and for transforming compressed vapor into a distilled liquid product and a vapor pump for compressing the vapor, the vapor pump in communication with the evaporative condenser and comprising: i. a single continuous internal drive shaft, ii. at least one intake for axial feeding; and iii. an eccentric rotor with a fully rotatable housing, the rotatable housing supported by a rotatable housing shaft, Applicants submit amended claims 1 and 25 would not have been obvious under 35 U.S.C. § 103(a) and is thus allowable over these references. Additionally, claims 2-5, 8, 12, 13, 15, 18-20, 24, 26-32 are also allowable for they are dependent from allowable independent claims.

Claim 36 has been amended to include the structural amendments of claims 1 and 25. For at least the same reasons stated above that claims 1 and 25 are allowable over the cited references, claim 36 is also allowable. Since claim 36 has been shown to be allowable, claims 49, 53, and 93 are also allowable because they depend from an allowable independent claim.

Additionally, Applicants' cancellation of claims 6-7, 9-11, 14, 16-17, 21-23, 35, 37-48, 50-52, 54-59 and 82-92 and 94-102, renders the rejection of these claims under 35 U.S.C. §103 regarding moot. Accordingly, Applicants respectfully requests this rejection under 35 U.S.C. §103(a) be withdrawn.

Claims 19-23, 25-32 and 41-48 are rejected under 35 U.S.C. §103(a) as being unpatentable over GB 121 1236 or Huse (US 3,956,072) as modified by Stewart (US 1,668,532) as applied to claims 1-18, 24, 35-40, 52-59, and 82-109, and further in view of Benian (US 5,667,683) or Cooksley (US 4,045,293) and Hobbs (US 4,265,263) and with or without Chou et al (US 6,698,353). Applicants respectfully traverse this rejection. As claims 22-23 and 41-48 have been canceled, the response to this rejection is limited to claims 19-20 and 25-32.

Regarding the obviousness rejection with respect to Hobbs (US 4,265,263) and Chou et al (US 6,698,353) references, Applicants have amended claims 1 and 25 removing "a feedback control loop comprising level sensors and variable-flow valves for controlling fluid flow and maintaining fluid levels in the system at near constant levels." Therefore, these amendments have rendered the rejections of over Hobbs and Chou moot. Accordingly, Applicants respectfully request the withdrawal of this rejection.

Regarding the obviousness rejection with respect to the Benian and Cooksley references, the Office action states "the claimed multi-unit filter having at least two units in the input for

filtering the liquid before the liquid is received by the vaporizer in claim 18 and section f) of claim 24; and further the claimed siphon pump to pump liquid into the vapor pump recited in claim 35 are known expediciencies as taught e.g., by Benian.” See Office Action dated September 29, 2006, page 6. Examiner also states that “Cooksley discloses similar structural elements.” See Office Action dated September 29, 2006, page 6.

Benian discloses a “two permanent mesh filter assemblies serviced by a single reciprocating backwash header/nozzle assembly, and other components” at col. 4 lines 61-67. Essentially, Benian discloses a backwashing filter assembly. However, Benian does not disclose or suggest all of the elements of Applicants’ claims 19 and 25, specifically an evaporative condenser coupled to the input for transforming the liquid to vapor and for transforming compressed vapor into a distilled liquid product and a vapor pump for compressing the vapor, the vapor pump in communication with the evaporative condenser and comprising: i. a single continuous internal drive shaft, ii. at least one intake for axial feeding; and iii. an eccentric rotor with a fully rotatable housing, the rotatable housing supported by a rotatable housing shaft.

For the same reasons Benian does not disclose all the elements of Applicant’s claims 19 and 25, Cooksley similarly does not disclose all the elements of Applicants’ claims 19 and 25 because “Cooksley discloses similar structural elements” as Benian. As claims 20, 26-32 depend from either claim 19 or claim 25, for the reasons stated above, Benian nor Cooksley disclose these claims.

Furthermore, combining Benian or Cooksley with GB ‘236, Huse, or Stewart, still would not disclose or suggest all the elements of Applicants’ claims 19 and 25 because as explained above, neither Huse, GB ‘236, Stewart, nor their combination disclose or suggest Applicant’s claims. Adding Benian and Cooksley to these references would only add a backwashing filter assembly to a device that is dissimilar, for at least the reasons describe above, from the one claimed by the Applicants. Additionally, because claims 1 and 25 have been shown to be allowable above, claims 19, 20, 24 and 26-32 are also allowable since they depend from an allowable independent claim. Since Benian, Cooksley, GB’236, Huse, and Stewart neither disclose nor suggest all the elements in claims 1 and 25, Applicants submit claims 19 and 25 would not have been obvious under 35 U.S.C. § 103(a) and are thus allowable over these references. Likewise, the claims dependent from claims 19 and 25 (i.e., claims 20, 26-32) are

thus allowable over the cited references. Accordingly, Applicants respectfully request this rejection under 35 U.S.C. §103(a) be withdrawn.

Claims 10, 37 and 92 are rejected under 35 U.S.C. §103(a) as being unpatentable over GB 121 1236 or Huse (US 3,956,072) as modified by Stewart (US 1,668,532) and Hobbs (US 4,265,263) and with or without Chou et al (US 6,698,353) as applied to claims 1-18, 24, 35-40, 52-59, and 82-109, and further in view of Trusch (US 4,316,774) or Kikkawa et al (US 4,437,933).

Applicants respectfully traverse this rejection, as claims 10, 37, and 92 are canceled herein, the rejection of these claims has been rendered moot. Accordingly, Applicants respectfully request this rejection under 35 U.S.C. §103(a) be withdrawn.

Claims 49-51 are rejected under 35 U.S.C. §103(a) as being unpatentable over GB 121 1236 or Huse (US 3,956,072) as modified by Stewart (US 1,668,532) and Hobbs (US 4,265,263) and with or without Chou et al (US 6,698,353) as applied to claims 1-18, 24, 35-40, 52-59, and 82-109, and further in view of Sneed et al (US 3,603,082) or Straka (US 5,761,903). Applicants respectfully traverse this rejection.

For the reasons stated above, claim 36 has been shown to be allowable. As such, claim 49 (as claims 50-51 are herein canceled) is allowable as being dependent from an allowable independent claim.

Applicants' cancellation of claims 50-51 renders Examiner's §103(a) rejection regarding these claims moot. Accordingly, Applicants respectfully request the rejection under 35 U.S.C. §103(a) be withdrawn.

CONCLUSION

For the foregoing reasons all of the claims of the present application are patentable over the art of record. It is believed that all of the claim rejections have been addressed and that the application is now in condition for allowance. Reconsideration of the claims and issuance of a notice of allowance are respectfully requested. If any matter arises which may expedite issuance of a notice of allowance, the Examiner is requested to call the undersigned, at the telephone number given below.

Applicants request that \$810.00 be charged to deposit account number 50-4383 to cover the fee for the Request for Continued Examination. Applicants also request a three-month

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extension of time. Kindly charge the \$2,230.00 extension of time fees to deposit account number 50-4383. Kindly charge the \$130.00 Terminal Disclaimer fee to deposit account number 50-4383. The Examiner is requested to telephone the undersigned if any matters remain outstanding so that they may be resolved expeditiously.

Respectfully submitted,

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